

Manufacturing /Engineering Technology

Associate of Applied Science Degree

2009-10 Academic Year

Major Code: 150613A

About the Program

This two-year program integrates conventional manufacturing techniques with computer integrated manufacturing skills. Computer aided drafting (CAD) and computer aided manufacturing (CAM) are used as basic tools in the manufacturing engineering process. In addition to technical training, students receive a solid education in mathematics and physical science, along with human relations and computer skills courses.

Graduates typically enter the workforce as either computer aided design drafters, entry-level machinists, or computer numerical control (CNC) machine operators or engineering assistants. With additional on-the-job experience, this training facilitates movement into fields such as tool and die maker, quality control inspector, computer aided manufacturing (CAM) programmer, or lower-level supervisory positions. For transfer to a four-year institution in engineering, additional or alternate transfer courses will be recommended.

Entry Requirements

Students are required to take a placement test to determine skill level and readiness in math, reading, and writing. Students must also complete any prerequisites on this guide. As part of their training program, students must begin with courses within their skill levels as determined by placement test scores. In addition, students may also be required to enroll in classes that would increase their employability and success.

Advanced Standing

Coursework from accredited colleges and universities will be accepted in accordance with college registration policies and with the Manufacturing/Engineering Technology program coordinator's recommendation. In order to ensure that coursework is current, program courses over four years old must be reviewed and approved by the appropriate program coordinator before being accepted toward core requirements. Students must complete coursework in their major at a "C" or better level before proceeding to advanced coursework. Each "2+2" Early College Credit student must meet with the program coordinator to determine placement.

Graduation Requirements

Students are required to complete all courses in this program with a grade of "C" or better to receive their degrees. Certain required courses are graded on a pass/no pass basis only. A grade of "P" for these courses indicates a student earned a "C" or better grade. Note: Effective summer term 2009, many general education courses went from three to four credits. The three-credit version of any art, writing, speech, humanities, or social science course will meet the same degree requirements as the new four-credit version. Students must still complete all required courses in this degree and at least 90 applicable credits to receive an associate degree.

Prerequisites

Course No.	Course Title	Credits
—	Approved 3-4 credit computer science class, CS120 or above computer proficiency) ¹	0-4
MTH20	Pre-algebra (or designated placement test score as shown on current indicator chart)	4
RD30	College Reading II (or designated placement test score as shown on current indicator chart)	4
WR30	Fundamentals of Composition II (or designated placement test score as shown on current indicator chart)	4

First Year Required Courses

Course No.	Course Title	Credits
First Term		
MET101	Mechanical Drafting	3
MET105	Mechanical Blueprint Reading	1
MFG101	Introduction to Manufacturing	3
MFG121	Manufacturing Processes I	4

Course No.	Course Title	Credits
MFG116	Metrology	2
MTH60	Fundamentals of Algebra I or	4
MTH63	Applied Technical Math or higher level math	
		17

Second Term

MET104	Applied Shop Practices or	3-4
MTH112	Elementary Functions	
MET121	Computer Aided Drafting I: Mechanical (SolidWorks)	3
MET160	Materials and Metallurgy	3
MFG122	Manufacturing Processes II	4
MFG140	CNC Controls	2
WR115	Introduction to Expository Writing or higher level composition	3
		18-19

Third Term

LBI127	Introduction to Library Research Methods	1
MET122	Computer Aided Drafting II: Mechanical (SolidWorks)	3
PSY101	Psychology of Human Relations or	3
BT101	Human Relations in Organizations	
MFG114	Geometric Dimensioning and Tolerancing	2
MFG123	Manufacturing Processes III	4
MFG241	CNC Programming – Mill	4
		17

TOTAL FIRST YEAR CREDITS

52-53

Second Year Required Courses

Course No.	Course Title	Credits
Fourth Term		
EET101	Introduction to Electronics	3
GS104	Physical Science w/lab	4
MFG230	Statistics and Quality Control	3
MFG242	CAM I: Mastercam	4
WLD101	Welding Fundamentals I	3
		17
Fifth Term		
MFG220	Research and Development Prototyping or	4
IT280	Cooperative Work Experience/Engineering	
MFG243	CAM II: Mastercam	4
WLD102	Welding Fundamentals II or approved program elective	3
WR121	English Composition I or higher level composition	4
—	Approved program electives	3
		18
Sixth Term		
MFG255	Computer Integrated Manufacturing or	4
IT280	Cooperative Work Experience	
MFG262	Lean Manufacturing	3
9.167	Emergency First Aid or approved health/first aid elective (see RCC catalog for approved list of electives)	1-3
—	Approved program electives	6
		14-16

TOTAL SECOND YEAR CREDITS

49-51

TOTAL PROGRAM CREDITS

101-104

Approved Program Electives (minimum 6 credits required):

Course No.	Course Title	Credits
CHEM104,105,106	Introductory Chemistry I, II, III w/lab and recitation	5-5-5
CHEM221,222,223	General Chemistry I, II, III w/lab and recitation	5-5-5
—	Any CS applications course	variable
CS140	Introduction to Operating Systems	4
CS240	Advanced Operating Systems	4
CS161	Computer Science I	4
CS162	Computer Science II	4
CS171	Computer Organization I	4
EET103	Electronics Drafting	3
EET105	Electromechanical Systems	3
EET106	Electronic Assembly	3
EET110	Electronics Drafting, Packaging and Test Instrumentation	5
EET225	Electronics Troubleshooting	3
IT111	Selected Technical Topic	var
IT121,122,123	Technical Career Support I, II, III	1-1-1
IT125	Technical Career Exploration	1
MET111,112,113	Computer Aided Drafting I, II, III: Mechanical (AutoCAD)	3-3-3
MET123	Computer Aided Drafting III: Mechanical (SolidWorks)	3
MET235	Design of Experiments	3
MET240	Project Management	3
MFG232	Advanced Statistic Process Control	3
MFG244	CNC Programming – Lathe	3
MFG260	Fixturing Methods and Tool Selection	3
MTH65	Fundamentals of Algebra II	4
MTH95	Intermediate Algebra	4
MTH111	College Algebra	4
MTH111R	College Algebra Recitation	1
MTH112	Elementary Functions ²	4
MTH112R	Elementary Functions Recitation ²	1
MTH243	Probability and Statistics w/lab	4
MTH251	Calculus I (Differential) w/lab	5
MTH252	Calculus II (Integral) w/lab	5
MTH253	Calculus III w/lab	5
MTH254	Vector Calculus w/lab	5
PH201,202,203	General Physics I, II, III w/lab and recitation	5-5-5
PH211,212,213	General Physics (Calculus Based) I, II, III w/lab and recitation	5-5-5
WLD102	Welding Fundamentals II	3
WLD111,112,113	Technology of Industrial Welding I, II, III	6-6-6
WLD121,122	Fabrication and Repair Practices I, II	5-5
WLD140	Blueprint Reading for Welders I	3

¹ Required for graduation. Successful completion of CS101 or otherwise meeting the proficiency requirement within the last 10 years fulfills this requirement.

² If not taken as required course.

For more information contact the Manufacturing and Engineering Technology Department:

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This advising guide is for advising purposes only. Please see current college catalog for additional information on specific college policies and graduation requirements.

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